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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/523,526

02/04/2005

Koji Maeda

HOK-0256

1863

23353 7590 04/12/2007
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WASHINGTON, DC 20036

EXAMINER

ZEMEL, IRINA SOPJIA

ART UNIT

PAPER NUMBER

1711

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,526	MAEDA ET AL.	
	Examiner	Art Unit	
	Irina S. Zemel	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5 and 7-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, and 7-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5, and 7-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 54-003848 and JP 55-5938, both of record in combination with either one of JP63-037815 to GOOU Kagaki Kogyo, JP56-150818 to Mitsubishi Electric or US Patents 5,935,684 to Handa et al, or 4,179,420 to Laganis.

The rejection of claims 1-3, 5, 1-13 stands as per reasons of record. As discussed in the previous office action, both of the cited primary disclose water-soluble polyester resins comprising condensation reaction products of a dicarboxylic acid, a glycol, a water-solubility imparting component such as SSIPA, and a reactive P-containing component. The difference between the disclosures of the cited prior art and the claimed invention is that the claimed water-solubility imparting component comprises tri- or tetra- basic acid anhydride. Tri-basic acid anhydrides, such as pyromellitic acid anhydrides (alone or in combination with other water-solubility imparting component) are notoriously known in the art of polyesters as co-polymerizable acids that improve water solubility/dispersability of resulting polyesters, and other properties of polyesters, such as providing polyesters with reactive sites that can serve as sites for further polymer modification. See, for example, disclosure of any of the cited secondary

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references, JP '815 and JP '818 abstracts, Handa (column 5, lines 19 et seq.), Laganis, background in column 1. Thus, adding trimellitic acid (anhydride) to polymerizable compositions disclosed in either one of JP 54-003848 and JP 55-5938 references instead of the disclosed water-solubility imparting component or in addition to it would have been prima facie obvious to obtain improvement in water solubility parameters of the resulting polyesters. It is noted that the amended claims (and claim 14) recite the amounts of water solubility impairing compound, however, the claimed limitation is related to the entire amounts of this components and not to the claimed tri- or tetra-basic acid anhydride. The amounts of other the water solubility imparting component, such as 5-sodium sulfonate dimethyl isophthalate, in the polyesters disclosed in the primary references (such as 7.5.%) fully correspond to the claimed amounts based on the total amount of acidic components.

Insofar as the limitations of claims 15-17, while those claims define some of the specific compounds of formulas (I0-(III)), none of the claims require the phosphorous compounds to be this component, and this components still can be selected from alternative components as per base claim 1.

The numerical limitation of claim 18 falls within the disclosed amounts or respective components of the primary references. (It is also a very common ratio of carboxy/hydroxy groups in a polyester polycondensation reaction).

Insofar as the limitations of molecular weights and viscosity of the claimed polyesters, the viscosity of the polyesters in both of the references correspond to the claimed viscosities, and, since viscosity is a characteristic corresponding to the

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molecular weights, it is believed that although the references are silent as to the molecular weight of the polymers, this characteristic is inherently present in the polyesters disclosed by both references. It is further believed that the claimed characteristics are inherently met by the primary references in view of the polymerization conditions of the disclosed polyesters and the broad ranged or claimed characteristics. The burden is shifted to the applicants to provide factual evidence to the contrary.

Thus, the invention as claimed would have been obvious from the disclosure of the cited references absent showing of unexpected results that can be CLEARLY attributed to the presence of residues of tri- (tetra)-basic acid anhydride reactive component in the polyester.

Response to Arguments

Applicant's arguments filed 1-29-2007 have been fully considered but they are not persuasive. The applicants argue that the references do not disclose the claimed invention insofar as the claimed contain tri- or tetra-basic acids anhydride as a water solubility imparting component in the claimed amounts. This argument is not persuasive as the claimed invention does not require the presence of the contain tri- or tetra-basic acids anhydride as a water solubility imparting component in any specific amount. The claims call for a "water-solubility imparting component" to be present in some specified amounts, not the claimed tri- or tetra- basic acid anhydrides. The tri- or tetra-basic acids anhydrides may be present in ANY amount in the water solubility

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impacting component and satisfy all of the claim limitations. Note that, for example, claim 7 requires two components to be present in the water-solubility imparting component, and its (total) amount of the water-solubility imparting component is in a range of 2 to 40 % with respect to the total amount of the dicarboxylic acid component and the water-solubility imparting component. This limitation, again, has absolutely nothing to do with the actual amounts of the claimed tri- or tetra-basic acids anhydride as a water solubility imparting component, rather it places a numerical limitation on the amount of "water solubility imparting component" that contains some unspecified amount of the claimed tri- or tetra-basic acids anhydride as a water solubility imparting component. Insofar as the amount limitation of the water solubility imparting component, such as 5-sodium sulfonate dimethyl isophthalate, the primary references expressly disclose it amounts that fully correspond to the claimed amounts based on the total amount of acidic components.

The applicants further argue that the claimed invention shows unexpected results that can rebut the obviousness rejection. This argument is also not convincing for at least several reasons, the main reason is that NONE of the examples in the specification illustrate embodiments that contain tri- or tetra-basic acids anhydride as a water solubility imparting component. All of the illustrative examples use 5-sodium sulfonate dimethyl isophthalate as such compound, and this is exactly the compound used as the water solubility imparting compound in the primary references JP '848 and JP '938. The fact that the references do not expressly disclose any of the specific properties of the compounds does not make this property unexpected, rather it is

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necessarily inherent property of the disclosed compounds. The unexpected results have to be attributed to the differences in the disclosed and claimed compounds and the proposed modifications, not what is exactly the same in the base reference and the claimed invention. In the instant case, the proposed modification was to add the claimed tri- or tetra-basic acids anhydrides as water imparting compound to the copolymers of JP '938 and JP '848 references which already expressly discloses 5-sodium sulfonate dimethyl isophthalate water imparting agent as the preferred comonomer.

Further, the showing of alleged unexpected results is nowhere near being commensurate in scope with the claimed invention as the invention claims addition of the water imparting agent as low as 1 % and as high as 40, and the illustrative examples do not cover this range.

Insofar as the arguments regarding newly added claims, the arguments are addressed in the rejection above.

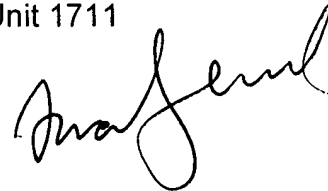
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Irina S. Zemel
Primary Examiner
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A handwritten signature in black ink, appearing to read 'Irina Zemel', written in a cursive style.

ISZ